Claims

[c1]   What is claimed is:

1.A method of processing an image using a difference wavelet, the method comprising:

loading the image into an image processing program;

decomposing the image using the difference wavelet;

truncating the image below a predetermined threshold level or enhancing the image according to an enhancement function;

reconstructing the image using the difference wavelet; and

outputting the image.

[c2]   2.The method of claim 1 wherein loading the image into an image processing program comprises the step of resizing an original dimension of the image.

[c3]   3.The method of claim 2 whereinresizing the original dimension of the image comprises resizing the image to have a new dimension of a ($2^k{\cdot}m$ x $2^k{\cdot}n$) matrix, wherein m and n are positive integers and k represents a level of decomposition and reconstruction.

[c4]   4.The method of claim 3 wherein decomposing the im-

age using the difference wavelet comprises performing a decomposition process of each row of the image, performing a matrix transpose operation on the image, and performing another decomposition process of each row of the image.

[c5]   5. The method of claim 3 wherein reconstructing the image using the difference wavelet comprises performing a reconstruction process of each row of the image, performing a matrix transpose operation on the image, and performing another reconstruction process of each row of the image.

[c6]   6. The method of claim 3 wherein outputting the image comprises resizing the image back to its original dimension.

[c7]   7. The method of claim 1 wherein after decomposing the image using the difference wavelet the method further comprises performing an RGB (red-green-blue) to YUV (luminance-bandwidth-chrominance) transformation.

[c8]   8. The method of claim 7 wherein after reconstructing the image using the difference wavelet the method further comprises performing a YUV to RGB transformation.

[c9]   9. The method of claim 1 wherein the truncation process is performed line by line on the image.

[c10] 10.The method of claim 1 wherein the difference wavelet used for decomposition and reconstruction has a filter bank corresponding to average values and a filter bank corresponding to fluctuation values.

[c11] 11.The method of claim 10 wherein parameters of the difference wavelet used for decomposition and reconstruction are (r, rt) = (1, 3), where r represents an average parameter and rt represents a fluctuation parameter.

[c12] 12.The method of claim 1 wherein the reconstruction process is performed by using periodic boundary conditions.

[c13] 13.The method of claim 1 wherein both truncating the image below the predetermined threshold level and enhancing the image according to the enhancement function are performed after decomposing the image using the difference wavelet.